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PROJECT TITLE: Natural Products Chemistry & Botanical Invest.  
PROJECT LEADER: H. J. Grubbs   
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Cis-abienol (12 Z-labda-12,14-diene-8 $\alpha$ -ol) is a labdanoid diterpene occurring in certain tobacco<sup>1,2</sup> varieties and is of interest in regard to tobacco aroma and flavor.<sup>3</sup> Clary sage (*Salvia sclarea*) has been reported to be a rich source of sclareol (labda-14-ene-8 $\alpha$ ,13-diol). The presence of the diol suggested clary sage as a potential source of cis-abienol. Using HPLC and TLC techniques<sup>4</sup> the presence of large quantities of sclareol was noted. No detectable quantities of abienol were found.

Harvest has been completed in a field study of cis-abienol production in tobacco. In a collaborative effort with the Leaf Department and North Carolina State University, field plot studies are being carried out at the Border Belt Tobacco Research Station, Whiteville, North Carolina. The major objectives in this study are to determine how cis-abienol concentration changes during growth and curing in different tobacco genotypes and what changes take place in other leaf constituents which accompany abienol changes. Six different tobacco genotypes are involved and three different curing methods will be utilized. Leaf disc samples were obtained on a weekly basis starting six weeks after transplant and continuing up to harvest. Cis-abienol as well as other leaf surface components are currently being analyzed by GC and HPLC. Various curing methods (sun-curing, flue-curing, and air-curing) are currently in progress.

In a collaborative effort with Project 1901,<sup>5</sup> a total of 3700 individual tobacco plants were visually screened and selections were made that represent diverse genetic material. These selections were made for further studies in the CGI programs.

Collaboration continues with the Leaf Department and the New Variety Introduction Committee.<sup>6</sup> The Flue Cured Tobacco Variety Evaluation Tours were completed for the Virginia-North Carolina Middle and Old Belt areas, and the Border and Eastern Belt areas. The Burley Tobacco Variety Evaluation Tours were completed for the Virginia-Tennessee cooperative farm plots.

#### References:

1. A. Colledge, W.W. Reid and R.D. Russell (1974) Ann Tob. Sect. 2, (11), 159-64.
2. V. Heemann, V. Brummer, C. Paulsen and F. Selhofer (1983) Phytochem. 22, 133-135.

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3. C. R. Enzell and I. Wahlberg (1980) Rec. Adv. Tob. Sci. 6, 65.
4. S.B. Hassam
5. R. Bass, G. Newell, G. West
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